16x16 DVI Matrix

EXT-DVI-16416

User Manual

www.gefen.com

ASKING FOR ASSISTANCE

Technical Support:

Telephone	(818) 772-9100
	(800) 545-6900
Fax	(818) 772-9120

Technical Support Hours:
8:00 AM to 5:00 PM PST Monday thru Friday.

Write To:

Gefen Inc.
c/o Customer Service
20600 Nordhoff St
Chatsworth, CA 91311

www.gefen.com
support@gefen.com

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INTRODUCTION

Congratulations on your purchase of the 16x16 DVI Matrix. Your complete satisfaction is very important to us.

Gefen

Gefen delivers innovative, progressive computer and electronics add-on solutions that harness integration, extension, distribution and conversion technologies. Gefen's reliable, plug-and-play products supplement cross-platform computer systems, professional audio/video environments and HDTV systems of all sizes with hard-working solutions that are easy to implement and simple to operate.

The Gefen 16x16 DVI Matrix

Now you can easily combine sixteen cross-platform computers and sixteen digital displays using the 16x16 DVI Crosspoint Matrix. The Matrix provides a simple, reliable and highly effective method of routing multiple computer workstations. Each computer is capable of displaying video on any one of the 16 monitors. There are 4 methods of controlling the Matrix - by using the front panel buttons, the IR remote, a built-in RS-232 interface, and IP control over a local area network.

How It Works

The 16x16 Crosspoint Matrix has sixteen DVI inputs and sixteen DVI outputs. Using the supplied DVI cables, connect your sixteen computers to the DVI input ports on the Matrix's input side. Connect the Matrix's sixteen DVI outputs to the displays. Plug in the power cord and power on the Matrix. The connected displays will show video according to the selection.

Note: This device only supports DVI-D.

READ THESE NOTES BEFORE INSTALLING OR OPERATING THE 16X16 DVI MATRIX

- The 16x16 DVI Matrix is not HDCP compliant
- There is a LOCAL EDID storage bank for each of the 16 DVI inputs. By default, the EDID from the display connected to DVI Output 1 will be copied to all 16 banks for use by each source device upon powering of the unit. Please ensure that a display is powered and connected to the first output port before applying power to the 16x16 DVI Matrix. If a display is not detected, an internal default EDID (640x480) will be used. This feature can be disabled by using the Secure Local EDID function via the RS-232 serial controls. Please see page 17 for more information.
- There is no internal scaling in the 16x16 DVI Matrix. All of the attached monitors must be able to display the resolutions output by the source devices. For maximum compatibility it is recommended that only one compatible/common resolution be used by all of the source devices.
- Advanced EDID features and IP configuration features are accessible via the RS-232 serial communications. Please see page 13 for more information.
- Routing and EDID features can be accessed via a web browser using the IP control feature built into the 16x16 DVI Matrix

FEATURES

Features

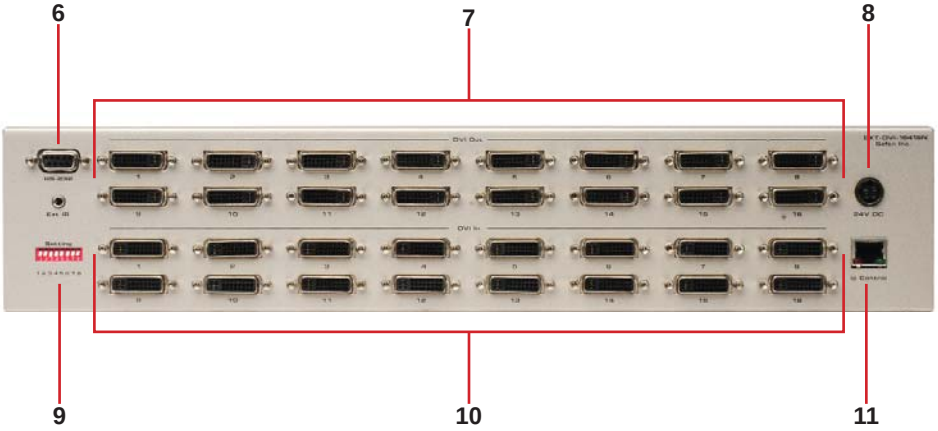
- Increases productivity by providing access to 16 displays from any 16 computers.
- Web-based control switching
- Maintains beautiful, sharp resolutions up to 1080p, 2K, and 1920x1200.
- Serial RS-232 for remote control via a computer or control automation devices
- Supports DDWG standards for DVI monitors
- Discrete IR remote control included

Package Includes

(1) 16x16 DVI Matrix
(16) 6 foot DVI cable
(1) RMT-16416IR remote control
(1) 24V DC Power Supply
(1) Set of Rack Ears
(1) Users Manual

Front Panel

Back Panel



1 Main LCD Display

This 2 line 16 character display will display status information and is also used to manage the display/source routes.

2 Control Buttons

These buttons are used to navigate the functions of the 16x16 DVI Matrix. The following buttons are available:

◄ - Left
► - Right
Select - Select

For complete details on these controls and how they are utilized, please see page 7 and 8.

3 Infrared (IR) Receiver

This IR receiver will accept commands form the included RMT-16 remote control. Line-of-sight between this receiver and the remote controls needs to be preserved for proper operation.

4 Power LED Indicator

This LED indicator will be active when the included 24V DC power supply is properly connected to the unit.

5 Cancel Button

This button is used to return the user to the main status screen once a routing change has been initiated and the user decides to not continue with the change.

6 RS-232 Serial Communications Interface

This interface was designed to accept commands from an external control system. This port will allow switching commands as well as EDID management and configuration operations. Please see page 13 for more information.

7 DVI Output Ports 1-16

These outputs are used to connect up to 16 DVI capable displays.

8 24V DC Power Receptacle

The port will accept power from the included 24V DC power supply.

9 DIP Switch Configuration Bank

These DIP switches are used to control the IR Code Configuration. Please see page 11 for more information.

10 DVI Input Ports 1-16

These inputs are used to connect up to 16 DVI capable sources.

11 10/100 Ethernet Control Interface

This port is used to connect the 16x16 DVI Matrix to a network for IP control. Please see page 19 for more information.

How to Connect the 16x16 DVI Matrix

1. Connect up to 16 DVI source devices to the DVI inputs on the rear panel of the 16x16 DVI Matrix using the supplied DVI cables.

2. Connect up to 16 DVI capable display to the DVI outputs on the rear panel of the 16x16 DVI Matrix using user supplied DVI cables.

3. Connect the included 24V DC power supply to the power input receptacle on the rear panel of the 16x16 DVI Matrix. Connect the opposite end of the cable into a open wall power socket.

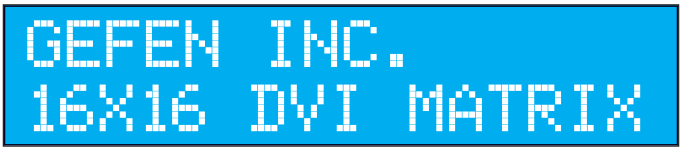
How to Operate the 16x16 DVI Matrix

The 16x16 DVI Matrix offers a number of control options. The following options can be used to control basic routing functions of the 16x16 DVI Matrix:

1. Front Panel Control Buttons - Page 7 and 8
2. RMT-16416IR Remote Control - Page 9 and 10
3. RS-232 Serial Control - Page 14 -18
4. IP Control - Page 19-25

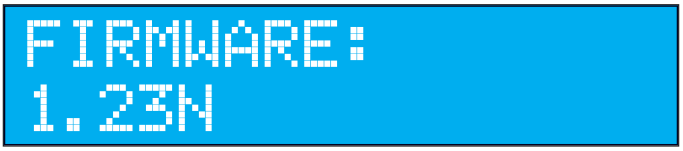
MAIN DISPLAY

The **Main Display** of the 16x16 DVI Matrix is a 16 character 2 line display. This display will show the standby screen and will also be used to aid in performing routing commands. The following is the standby screen:



This screen will display the company and product name.

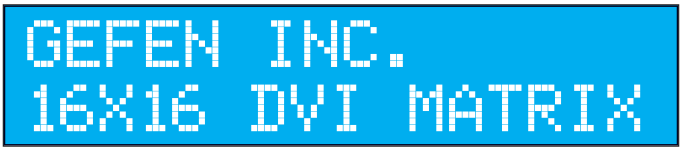
Pressing the ◄ or ► will display the firmware screen:



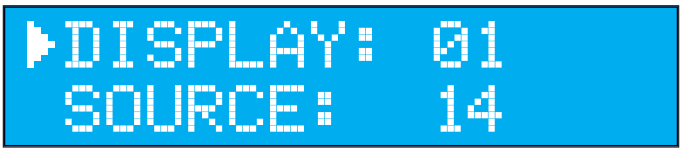
This screen will display the current firmware revision.

FRONT PANEL SELECTION

To route sources to a display :

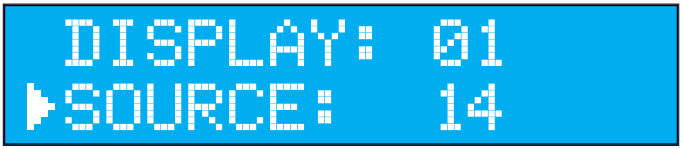


Starting at the standby screen, press the SELECT button. The display selection screen will now be displayed:

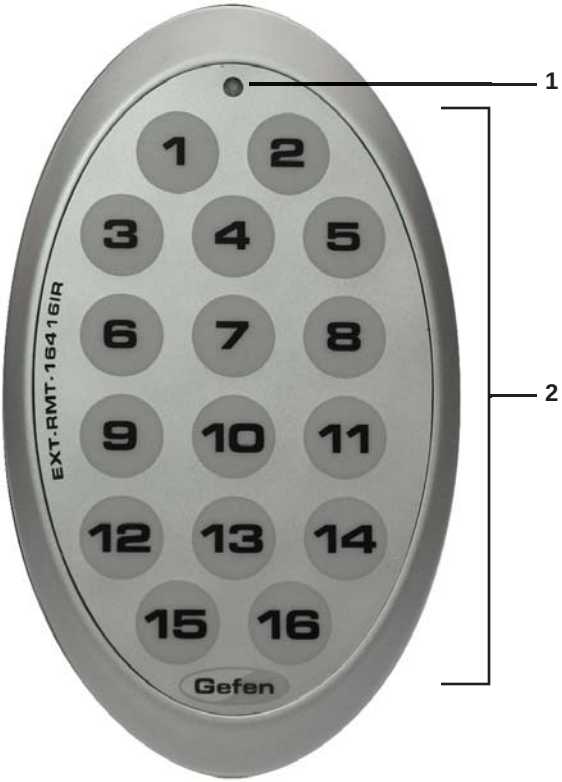


On this screen use the ◄ or ► buttons to select the desired display that will have a source routed to it in the next step. Once selection is complete press the SELECT button to confirm the selection. To cancel this operation at this time press the CANCEL button.

Once the delay has been selected and confirmed, the source can then be chosen which will be routed to the selected display. The following is the source selection screen:



On this screen use the ◄ or ► buttons to select the desired display that will be routed to the display selected in the previous step. Once selection is complete press the SELECT button to confirm the selection. The selected source will now be routed to the selected display. Once the routing is complete, the user will be returned to the standby screen. To cancel this operation at this time press the CANCEL button.



1 LED Button Press Indicator

This LED will activate momentarily upon each button press. This visual indicator is to inform the user that a command has been sent by the IR remote control.

2 Display and Source Selection Buttons

These buttons will be used to send display and source selections to the 16x16 DVI Matrix.

Routing Sources to Displays

Issuing a routing command is a two step process. The first step will be to select a the display (1-16) which a source will be routed to in the next step. Once the display has been entered, the source can then be selected. Select the source (1-16) which will be routed to the display selected in the previous step. For example, to route the source connected to input 6 to the display connected to output 4 the input steps would be the following:

1 Press button 4 (display) on the RMT-16416IR remote control.

2 Press button 6 (source) on the RMT-16416IR remote control.

3 The source will immediately be routed to the display.

RMT-16416IR REMOTE INSTALLATION

To use the RMT-16416IR remote, remove the battery cover on the back of the remote to reveal the battery compartment. Insert the included battery into the open battery slot. The positive (+) side should be facing up. Ensure that both DIP (Dual Inline Package) switches are in the OFF position. Replace the battery cover. The remote ships with 2 batteries. One battery is needed for operation and the other battery is complimentary.

Empty Battery Slot

IR Code Dip Switches

How to Resolve IR Code Conflicts

In the event that IR commands from other remote controls conflict with the supplied RMT-16416IR remote control, changing the remote channel will alleviate this issue. The RMT-16416IR remote control and the 16x16 DVI Matrix both have banks of DIP (Dual Inline Package) Switches for configuring the remote channel that both units use to communicate. These settings must exactly match each other for proper operation.

The DIP Switch bank on the RMT-16416IR is located underneath the battery cover. DIP Switch bank for the 16x16 DVI Matrix is located on the back panel of the unit. One DIP switch bank (8-switch) is provided and adjustment of remote control frequencies and other switch behavior are managed by this switch . Switches 1 and 2 on the RMT-16416IR directly correspond to DIP Switches 1 and 2 on the 16x16 DVI Matrix. Only switches 1 and 2 (of 8 in that bank) are used for IR Code settings.

Remote Channel 1: Default

Remote Channel 2:

Remote Channel 3:

Remote Channel 4:

Left: Picture of the opened rear battery compartment of the RMT-16416IR remote showing the exposed DIP Switch bank between the battery chambers.

16x16 DVI Matrix

Remote Channel 1: Default

Remote Channel 2:

Remote Channel 3:

Remote Channel 4:

EDID MANAGEMENT FEATURE

EDID. What is it and what is it used for?

Under normal circumstances, a source device (digital and analog) will require information about a connected device/display to assess what resolutions and features are available. The source can then tailor its output to send only resolutions and features that are compatible with the attached device/display. This information is called EDID (Extended Display Information Data) and a source device can only accept and read one EDID from a connected device/display. Likewise, the source an only output one resolution for use by a connected device/display.

Why is EDID so important with the 16x16 DVI Matrix?

The 16x16 DVI Matrix is a complex piece of technology that replicates and switches between multiple inputs and outputs. Each connected source device will require one EDID to read. EDID management is carefully handled by the 16x16 DVI Matrix to provide a single EDID for each source to read.

What options do I have to manage the EDID in the 16x16 DVI Matrix?

First, it is important to note that each source device can only output one video/audio signal type. This includes resolutions and timings. When multiple devices/displays are used, such as with the 16x16 DVI Matrix, it is important to use devices/displays that have similar or compatible resolutions and features. This will ensure that the single video/audio signal produced by the source device is accepted by all of the connected output devices/displays.

The user has the option, through utilization of the RS-232 serial interface, to choose how the unit will manage the EDID from multiple DVI devices/displays. Therefore the user has some control over the resolutions and features that the source devices will output. The 16x16 DVI Matrix has a LOCAL EDID management mode that will control how the EDID information is handled.

How do I change EDID modes in the 16x16 DVI Matrix?

EDID modes and IP configuration is managed via the RS-232 serial communications port. See page 13 for more information on the RS-232 serial communication features.

What features are available via the RS-232 serial communications port?

The 16x16 DVI Matrix Switcher can accept commands through the RS-232 serial communications port located on the rear panel. The current RS-232 control features are:

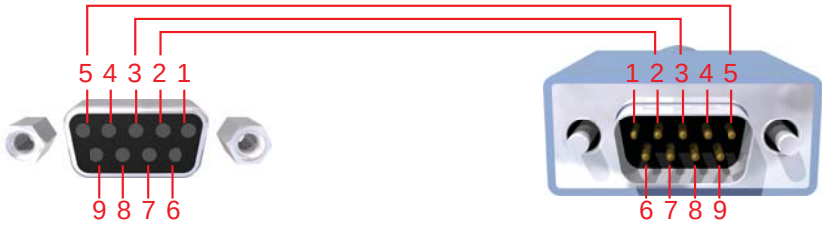
- Switching/routing of inputs to outputs without the RMT-16416IR remote control.
- Managing the EDID bank and EDID that is loaded into the LOCAL EDID.
- Upload new EDID's to the EDID bank or directly to the LOCAL EDID location.
- Manage IP settings.

How do I use these features?

These features were initially intended for utilization by custom installers in automated setups. However, these features can be tested and used by using any Windows PC with the Hyperterminal program.

What pins are used for communication with the 16x16 DVI Matrix Switcher?

Only pins 2 (Receive), 3 (Transmit), and 5 (Ground) are used for communication. A null-modem adapter should not be used with this product.



Only Pins 2 (RX), 3 (TX), and 5 (Ground) are used on the RS-232 serial interface

What are the communication port settings?

Bits per second 19200

Data bits 8

Parity ..... None

Stop bits 1

Flow Control ..... None

RS-232 Features

RS-232 remote functions are used to manage the control of this product's features. Features include input to output routing, EDID storage, EDID management, etc. These functions are available only through the use of the serial port.

Functions Syntax

The syntax for each function is always the same:

Character as the start flag → Function name → Space (_) as function name end flag → Parameter 1 → Space → Parameter x → Carriage Return (\r) →

Sample:

#FunctionName_param1_param2_param3_param4...\r

Syntax is NOT case sensitive.

Function list

EDID Management

DS EDID store in Local EDID

This function reads the EDID file from DS and stores it in any input as its Local EDID

#EDIDDSTOLO_param1_param2[_param3][_param4][_param5][_param6][_param7][_param8]…[_param9]\r

Parameter	Name	Value
1	MONITOR	[1:16]
2	ALL INPUTS	0
2 [3-9 optionally]	INPUT	[1:16]

DS EDID store in EDID Bank

This function reads the EDID file from DS and stores it in the EDID Bank.

#EDIDDSTOBA_param1_param2\r

Parameter	Name	Value
1	MONITOR	[1:16]
2	EDID bank offset	[1:5]

EDID from Bank store in Local EDID

This function reads an EDID file from the EDID bank and stores it in any input's Local EDID location.

#EDIDBATOLO_param1_param2[_param3][_param4][_param5][_param6] [_param7][_param8]…[_param9]\r

Parameter	Name	Value
1	EDID bank offset	[1:5]
2	ALL INPUTS	0
2 [3-9 optionally]	INPUT	[1:16]

Default EDID store in Local EDID

This function stores the default EDID in any inputs Local EDID

#EDIDDETOLO_param1[_param2][_param3][_param4][_param5][_param6] [_param7][_param8][_param9]\r

Parameter	Name	Value
1	ALL INPUTS	0
1 [2-9 optionally]	INPUT	[1:16]

Load EDID to local

This function enables the user to load an EDID file through serial port to one of the input's Local EDID location.

#LOEDIDTOLO_param1_param2_param3\r

Parameter	Name	Value
1	INPUT	[1:16] [0] is all inputs
2	128 bytes	1
	256 bytes	2
3	Return eco	0
	No return eco	1

When using Hyper Terminal use "No return eco"

Print Local EDID

This function reads the a Local EDID file and sends it to the serial port.

#PRLOEDID_param1 \r

Parameter	Name	Value
1	INPUT	[1:5]

Print DS EDID

This function reads the DS EDID file and sends it to the serial port.

#PRDSEDID_param1\r

Parameter	Name	Value
1	MONITOR	[1:16]

Print Bank EDID

This function reads the EDID file from the bank and sends it to the serial port.

#PRBAEDID_param1\r

Parameter	Name	Value
1	BANK	[1:5]

Print Local EDID Data

This function prints a table that contain details about a Local EDID source and the monitor name

#PREDIDST\r

Secure Local EDID

This function secures the locals EDID; disables the automatic loading of EDID after power up.

#LOCKEDID_param1 \r

Parameter	Name	Value
1	Disable/Enable	[0:1]

IP Configuration

Set IP Address

This function sets a new IP address for the system (needs a reboot afterwards)

#SIPADD_param1 _param2 _param3 _param4 \r

Parameter	Name	Value
1	IP address 0	[0 : 254]
2-4	IP address 1-3	[0 : 255]

Set Net Mask

This function sets a new net mask for the system (needs a reboot afterwards)

#SNETMASK_param1 _param2 _param3 _param4 \r

Parameter	Name	Value
1-4	Net mask	[0:255]

Set Gateway

This function sets a new gateway for the system (needs a reboot afterwards)

#SGATEWAY_param1 _param2 _param3 _param4 \r

Parameter	Name	Value
1-4	Gateway	[0:255]

Set Port

This function sets a new port for the system (needs a reboot afterwards)

#SPORT_param1 \r

Parameter	Name	Value
1-4	Port	[0:255]

Print WEB Configuration

This function prints on screen the WEB configuration: IP address, net mask, gateway, MAC address, port

#PRWEBADD\r

General

Erase All Memory

This function will erase all LOCAL memory banks and IP settings

#MEMERASE \r

Set RMT IR Address

This function will set the RMT IR address channel

 # RMTIRADD _param1 \r

Parameter	Name	Value
1	RMT IR	[0 : 3]

Masking Output Channels

This function will blank selected outputs

#MASKOUT_param1_param2\r

Parameter	Name	Value
1	OUTPUT	[1 : 16]
2	Unmask	0
	Mask	1

NOTE: Mask state will be lost if power is lost.

5V Power Memory

This function disables/enables the lock power state. Enabling this feature will remember the 5V status for inputs prior to shutdown. This will preserve the 5V state when the unit is restarted.

 # LOCKPOWER_param1 \r

Parameter	Name	Value
1	Disable/Enable	[0 : 1]

Command List

Simplified syntax was used for command implementation for faster operation with the device: # character – isn't needed, the command name is reduced to 1 letter.

Routing Command

r_param1_param2\r

Parameter	Name	Value
1	DVI OUTPUT	[1:16]
2	DVI INPUT	[1:16]

Example: r 11 16 connects Output 11 to DVI Input 16

Routing One Input to All Outputs

s_param1\r

Parameter	Name	Value
1	Input	[1 : 16]
	0-0,1-1…	0

Matrix Status Command

The "m" command will present matrix current routing state.

+5V for FOE (Fiber Optic Extender) State

The 'f' command returns state of pin 14 of DVI inputs.

"High" - +5V enabled to DVI input, "Low" - +5V disabled to DVI input

Enable/Disable +5V for FOE

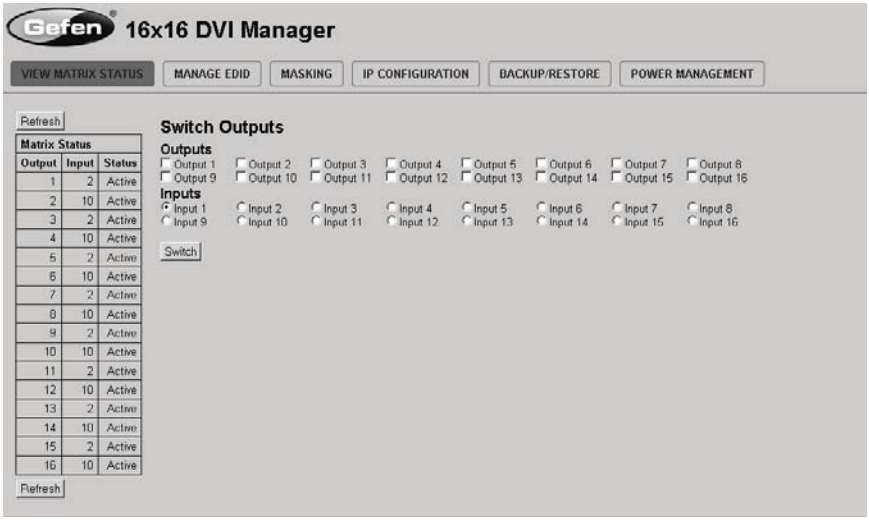
f_param1_param2\r

Parameter	Name	Value
1	DVI input	[1 : 16]
2	Enable	1
	Disable	0

The 16x16 DVI Matrix supports IP based control via an integrated WEB interface. To access this feature an IP address, subnet, gateway, and port need to be set on the 16x16 DVI Matrix (**Default IP: 192.168.0.70 Subnet: 255.255.255.0 Gateway: 192.168.0.1 Port: 80**). These settings must fall within your networks IP address range. Please consult your network administrator to obtain the proper IP address and settings for this product to properly communicate on your network.

The IP control setting can be configured via the RS-232 control interface. Once this has been accomplished, access to the WEB interface is possible.

Simply type the IP address that was assigned to the product in a web browser to access the **Main Page**. It should look like the image below.



MAIN PAGE

The **Main Page** will display the current status and can also be used to create routes.

To create a new route, follow the steps below:

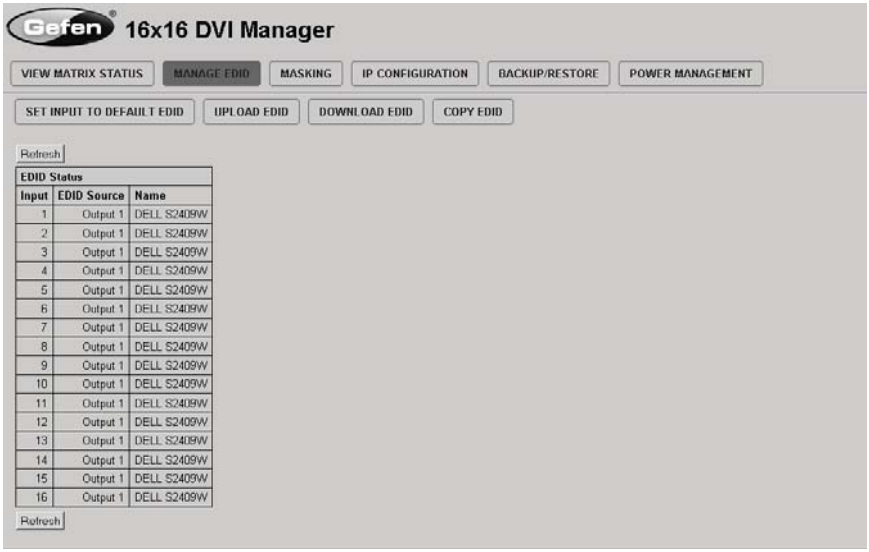
1. Click on the check boxes of all of the outputs that you would like to route an input to.

2. Click on the input that will be routed to the selected outputs.

3. Click the “Switch” button to initiate the change(s).

This page will automatically refresh every minute, however, at anytime the “Refresh” button can be pressed to refresh the status of the matrix.

MANAGE EDID



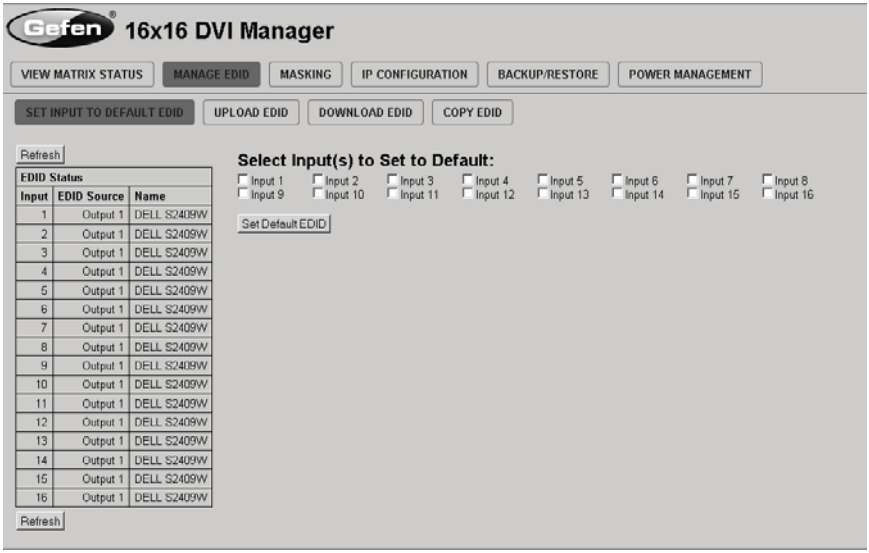
The **Manage EDID** page is used to see the status of the EDID saved in the LOCAL storage location for each input. This section has additional tabs for advanced EDID functions. These tabs are:

- SET INPUT TO DEFAULT EDID
- UPLOAD EDID (Future Implementation)
- DOWNLOAD EDID (Future Implementation)
- COPY EDID

This page will automatically refresh every minute, however, at anytime the “Refresh” button can be pressed to refresh the status of the matrix.

SET INPUT TO DEFAULT EDID

Pressing the “SET INPUT TO DEFAULT EDID” button will display additional options. The following page will open.



On this page the user can select which LOCAL memory locations will be overwritten with a built-in EDID stored in the 16x16 DVI Matrix. To set an input’s LOCAL memory location to the default EDID follow the steps below.

1. Select any number of inputs from the section “Select Input(s) to Set to Default”.

2. Click on the “Set Default EDID” button to initiate the change(s).

Note: After this command is complete the user will be returned to the **Main Page**.

This page will automatically refresh every minute, however, at anytime the “Refresh” button can be pressed to refresh the status of the matrix.

COPY EDID

Pressing the “COPY EDID” button will display additional options. The following page will open.

Gefen
16x16 DVI Manager
VIEW MATRIX STATUS
MANAGE EDID
MASKING
IP CONFIGURATION
BACKUP/RESTORE
POWER MANAGEMENT
SET INPUT TO DEFAULT EDID
UPLOAD EDID
DOWNLOAD EDID
COPY EDID
Refresh
EDID Status
Input
EDID Source
Name
1 Output 1 DELL S2409W
2 Output 1 DELL S2409W
3 Output 1 DELL S2409W
4 Output 1 DELL S2409W
5 Output 1 DELL S2409W
6 Output 1 DELL S2409W
7 Output 1 DELL S2409W
8 Output 1 DELL S2409W
9 Output 1 DELL S2409W
10 Output 1 DELL S2409W
11 Output 1 DELL S2409W
12 Output 1 DELL S2409W
13 Output 1 DELL S2409W
14 Output 1 DELL S2409W
15 Output 1 DELL S2409W
16 Output 1 DELL S2409W
Refresh
Select Source to Copy from:
Output 1 Output 2 Output 3 Output 4 Output 5 Output 6 Output 7 Output 8
Output 9 Output 10 Output 11 Output 12 Output 13 Output 14 Output 15 Output 16
Input 1 Input 2 Input 3 Input 4 Input 5 Input 6 Input 7 Input 8
Input 9 Input 10 Input 11 Input 12 Input 13 Input 14 Input 15 Input 16
Select Input(s) to Copy to:
Input 1 Input 2 Input 3 Input 4 Input 5 Input 6 Input 7 Input 8
Input 9 Input 10 Input 11 Input 12 Input 13 Input 14 Input 15 Input 16
Set EDID

On this page, the user can select an EDID from either the LOCAL memory locations (Input) or from a display that is currently attached to any output, and copy that EDID to any other LOCAL memory location. This will allow the user to manage what EDID information will be passed to each source connected to the 16x16 DVI Matrix.

To copy an EDID follow the steps below.

1. Select an EDID from the section ”Select Source to Copy from”. The user can choose an EDID from a display connected to one of the outputs or from an EDID already loaded into one of the LOCAL memory locations (Input).

NOTE: Please note that only one EDID can be selected for copying.

2. Select the LOCAL memory locations that will receive the selected EDID in the section “Select Input(s) to Copy to”.

NOTE: Multiple LOCAL memory locations can be specified during this step.

3. Click on the “Set EDID” button to initiate the change(s).

Note: After this command is complete the user will be returned to the **Main Page**.

This page will automatically refresh every minute, however, at anytime the “Refresh” button can be pressed to refresh the status of the matrix.

MASKING

The **Masking** page is used to hide an output from displaying any video. From this page, all outputs can be set to “Active” or “Mask”. When an output is set to “Active”, it will function normally. When an output is set to “Mask”, it will not output any video. To set the “Active” or “Mask” mode, follow the steps below.

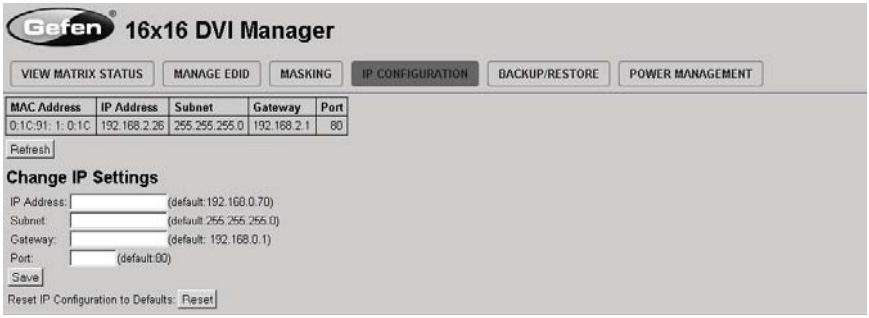
1. Select either “Active” or “Mask” for any number of desired outputs.

2. Press the “Submit” button to initiate the change(s).

Note: After this command is complete the user will be returned to the **Main Page**.

This page will automatically refresh every minute, however, at anytime the “Refresh” button can be pressed to refresh the status of the matrix.

IP CONFIGURATION



The **IP Configuration** page is used to set the IP settings that will be used to access the WEB interface. The following items can be configured from this menu.

- IP Address (Default: 192.168.0.70)
- Subnet (Default: 255.255.255.0)
- Gateway (192.168.0.1)
- Port (Default: 80)

To change these settings follow the steps below.

1. Enter the desired network information into the fields provided.
2. Press the “Save” button to initiate the change(s).

Note: After this command is complete the user will be returned to the **Main Page**. Setting made on this page will not take effect until the unit is restarted. Please disconnect power from the unit and reconnect power for changes to take effect.

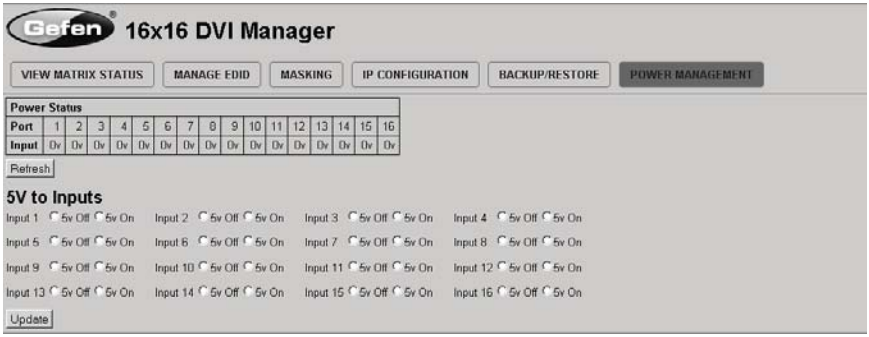
At anytime, the “Reset” button can be pressed to return the IP settings to their defaults.

BACKUP/RESTORE

The **Backup/Restore** page is used to backup and restore complete setup configurations.

Note: This feature will be implemented in a future release.

POWER MANAGEMENT


16x16 DVI Manager
VIEW MATRIX STATUS
MANAGE EDID
MASKING
IP CONFIGURATION
BACKUP/RESTORE
POWER MANAGEMENT
Power Status
Port 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Input 0v 0v 0v 0v 0v 0v 0v 0v 0v 0v 0v 0v 0v 0v 0v 0v
Refresh
5V to Inputs
Input 1 5v Off 5v On
Input 2 5v Off 5v On
Input 3 5v Off 5v On
Input 4 5v Off 5v On
Input 5 5v Off 5v On
Input 6 5v Off 5v On
Input 7 5v Off 5v On
Input 8 5v Off 5v On
Input 9 5v Off 5v On
Input 10 5v Off 5v On
Input 11 5v Off 5v On
Input 12 5v Off 5v On
Input 13 5v Off 5v On
Input 14 5v Off 5v On
Input 15 5v Off 5v On
Input 16 5v Off 5v On
Update

The **Power Management** page is used to set optional +5V power on an input to power specific optional devices. The current status of this feature for each input can be viewed on this page. To set this feature for each input follow the steps below.

1. Select the +5V option, either “On” or “Off” for each desired input.

2. Click on the “Update” button to initiate the change(s).

Note: After this command is complete the user will be returned to the **Main Page**.

This page will automatically refresh every minute, however, at anytime the “Refresh” button can be pressed to refresh the status of the matrix.

+5V FO ENABLE

DIP switch 3 on the rear panel will globally enable the +5V feature. This will supply each input with +5V to power optional peripheral devices. This feature can be set individully for each input via RS-232 commands or via the WEB interface.

FIRMWARE UPDATE PROCEDURE

To begin the update procedure the unit's Boot Loader must be activated. To activate the Boot Loader please follow the procedure below:

If the unit is already powered on, the following RS-232 command can be used to activate the Boot Loader:

1. Connect RS-232 cable to PC and activate the Hyper Terminal program.
2. Type the command: #ACTIVEBOLO\r
3. Re-type the command: #ACTIVEBOLO\r

If the unit is not powered on, follow the instructions below to activate the Boot Loader:

1. Connect RS-232 cable to PC and activate the Hyper Terminal program.
2. Make sure Hyperterminal is set to the following:
    a. Baud rate = 19200
    b. Stop bits = 1
    c. Data bits = 8
    d. Flow control = None
3. Press the following three buttons on the front panel of the 16x16 simultaneously, while powering-on the unit:
    a. select
    b. < (left cursor)
    c. > (right cursor)

Once the Boot Loader is activated the following message should appear:

DVI16x16 Boot Loading

========== Main Menu ==========

Download new program to the temporary memory -------- 1

Copy new program to main memory ---------- 2

Execute the new program ---------- 3

==========

Follow the on-screen instructions to complete the firmware update process:

1. Press [1] on the computer keyboard to begin downloading program to the temporary memory.
2. A message will appear in Hyperterminal:

   Waiting for the file to be sent ... (press ‘a’ to abort)
3. In Hyperterminal, click Transfer > Send File...
4. Click Browse... and select the .BIN file you wish to upload (for example: DVI16X16_uIP_3_18.bin)
5. Select Ymodem for the protocol.
6. Press Send on the Send File dialog box.
7. A message will appear in Hyperterminal:

   Programming Completed Successfully!
8. Press [2] on the computer keyboard to begiin copying the program to main memory. The next massage will appear:

   Memory copy, please wait .....
9. Wait until the copying process is finished. The next text will appear on the screen:

   Memory copy, please wait ..... finished to copy
10. Press [3] on the computer keyboard and the new program will be executed.

SPECIFICATIONS

Video Amplifier Bandwidth ..... 165 MHz per channel

Single Link Range ..... 1080p / 1920x1200 (PC)

Input Video Signal ..... 1.2 Volts p-p

Power Consumption ..... 60 Watts (max)

Remote Control Ports ..... One RS232 female, One mini-stereo

DVI Connector ..... DVI-I 29 Pin Female (digital only)

Rack mountable ..... 2U rack space, rack ears included

Dimensions ..... 17” W x 3.5” H x 7.3” D

Power Supply ..... 24V DC

Shipping Weight ..... 29 lbs.

WARRANTY

Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.

2. Customers outside the US are responsible for shipping charges to and from Gefen.

3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, please visit Gefen's Warranty web page at http://www.gefen.com/kvm/aboutus/warranty.jsp

PRODUCT REGISTRATION

Please register your product online by visiting Gefen's web site at http://www.gefen.com/kvm/Registry/Registration.jsp

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4.6

20600 Nordhoff St., Chatsworth CA 91311

1-800-545-6900 818-772-9100 fax: 818-772-9120

www.gefen.com support@gefen.com